Converting Units of Measure –
Calculating a New Field in the Attribute Table

You've been asked to determine the acreage of the polygon features of a layer and then label the layer with the derived acreage values.

Most features created with GIS software give you the measure of area in the units of the layers projection squared – for example feet squared for State Plane and Meters for data in UTM.

To solve this issue a new field needs to be added to the layers table and then the field populated with the appropriate acre values.

Two examples will be demonstrated of how to use the field calculator to populate the cells of the new fields.

In both cases we will use a conversion constant to obtain the acres of the polygons.

In the first example we will have a layer projected in State Plane (US Foot).

In the second, the conversion will be from meters squared to acres.

The advantages of this method are it provides accurate permanent data for all the cells in the attribute table.

Now those values can be easily used for reports or to label the map.

There are several disadvantages.

You need to know how to write very basic logical expressions.

You need to know a little about setting up the properties of the cells, for example whether to use Integers or Floats; which starts you down the path of database management issues.

The third issue is; this only gives you the conversions for existing features within the layer.

Before we create a new field you need to activate the Editor Toolbar to be used later.

To activate the Editor toolbar simply go to View on the Main toolbar, then Toolbars in the dropdown and click on Editor.

When dealing with parcels an area request is always in acres.

Here is a parcel layers attribute table.

The table has an Area field we can use to within a simple calculation to create the Acres values.

The first step is to add the Acres field to the table.

Along the bottom of the attribute table click on the Options button and then Add Field.

In the dialog Name the Field Acres.

For the Type choose Float.

In the Field Properties type in 10 for Precision and 1 for Scale.

Precision is basically the number of characters allowed and scale the number of decimal places displayed.

Now that we have the field added; start an editing session.

If you do your field calculations outside of an edit session the changes to the table are permanent.

So, if you make a mistake or need to change your calculation you would have to delete the field and start all over.

Go to the Edit Toolbar and choose the Editor Button.

From the menu choose Start Editing

In the dialog choose the appropriate source.

You will see the layers that can be edited in the bottom window pane.

Click OK.

The field headings for editable fields have turned white.

Right-click on the Acres field.

Choose Calculate Values.

The Field Calculator dialog will appear.

Notice the field name, center left in the dialog.

It reads Acres =

To derive the Acres values from square feet multiply by the conversion constant 0.0002295684.

In the bottom window pane we need to define what expression we want to be calculated.

To create the expression, start in the Fields window and click once on Area.

Acres will appear in the window within brackets.

Using the operators on the right, choose the multiply button.

Next, type in the conversion constant.

Click Ok.

The cells of the fields are populated with the acres for all the features of the layer.

In this example the Area field is in squared meters.

In the field calculator a different expression will be created.

Double-click Area and then from the operator list choose the forward slash to designate division.

Next, type in the conversion constant.

Click Ok.

The cells of the fields are populated with the acres for all the features of the layer.